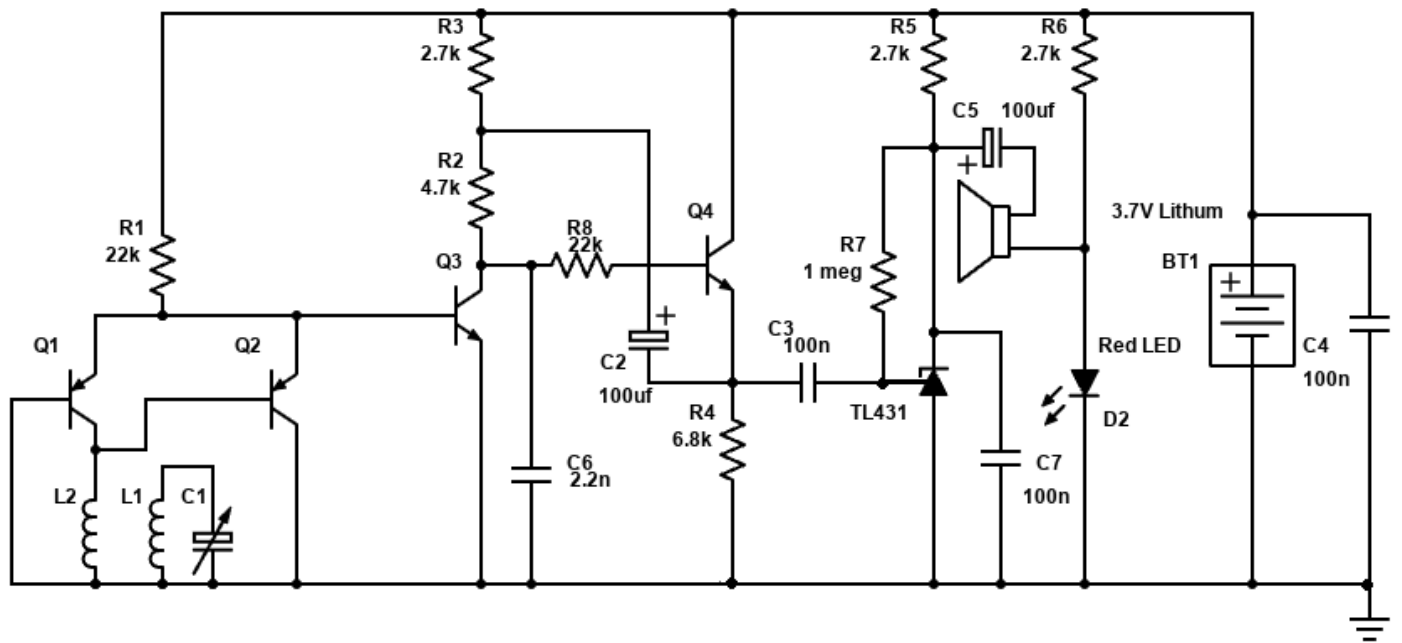




Experimenters Regen





Q1 and Q2 form a simple cross-linked differential pair that provide negative resistance into L2. L2 is placed close to L1 to couple the negative resistance into the tuned circuit. Regeneration control is by adjusting the distance between the two. Q3 is an approximate current mirror for Q1 and Q2 and may have to be chosen by experiment. A good sign is the voltage drop across R2 and R3 is about 1 volt. You may also increase R2 and R3 to get a 1 volt drop.

Q3 acts as the AM detector and its output is fed to the emitter follower Q4. R8 is to help block RF and stabilize audio gain. The output of the emitter follower is coupled to the top of R2 which boosts its apparent resistance to the transistor Q3, greatly increasing AM detector gain.

The audio signal is fed to a TL431 shunt voltage regulator acting as a high gain audio amplifier. The output of the TL431 is fed to headphones whose earpieces are in series (64 ohms.) The red LED provides audio level limiting. Reduce R5 and R6 for higher maximum audio levels.

The circuit works best at frequencies above 5 MHz where the number of turns required for L2 are small (4,5,6..). For lower frequencies R1, R2 and R3 need to be increased a lot to stop L2 resonating by itself at its self resonant frequency.

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